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are well developed, they are singularly pale in color, and have a more delicate structure than any of the species heretofore observed.

They are also ornamented with small chocolate-colored spots or mottlings, quite unusual to the species. Though secured in one lot, their habitat is still conjectural.

Reference was also made to a new species of *Helix*, found in the Island of New Guinea.

This the speaker had named *Helix Dentoni* in honor of the discoverer, Mr. Wm. Denton, who died while pursuing his researches in the wilds of the island mentioned. The type, which has been presented to the Academy, was received from Mr. Geo. W. Dean, of Kent, Ohio, to whom it was sent from New Guinea by the sons of Mr. Denton. Its habitat is therefore established.

The species belongs to the sub-genus *Trachia*, its nearest ally being *H. Tuckeri*, Pfr.; but it may readily be distinguished from the latter by the continuous peristome, more oblique aperture and deeper constriction of the whorl behind the lip.

In reference to the lasting character of the colors of shells when properly cared for, attention was called to a magnificent *Triton tritonis* belonging to the speaker. This specimen is 18 inches long, 11 inches high, and has an expanse of lip 6 by 9 inches. Though known to have been out of its native element for more than fifty years, the external colors are still perfectly patterned and brilliant, while the crimson and white sun-burst covering the inside of the lip is a bit of coloring which an artist might envy.

MAY 21.

The President, Dr. JOSEPH LEIDY, in the chair.

Twenty-eight persons present.

In connection with the proceedings of the Biological and Microscopical Section the following communication was made:—

On the fore and aft poles, the axial differentiation and a possible anterior sensory apparatus of Volvox minor.—Prof. J. A. RYDER remarked that he had recently had an opportunity to study a very large colony of *Volvox minor* Stein, which appeared in the aquarium jars kept in the Conservatory of the Biological Department of the University of Pennsylvania. As some of the singular features of these algæ which he had noticed were apparently unrecorded, it was desirable that they should be described in order that others should have an opportunity to more fully investigate the facts and their bearings upon the life-history of these singular organisms.

It was noticed that there was an empty pole in every colony or cænobium. This empty or non-spore-bearing pole was always the anterior one, or that which was directed forwards in the act of locomotion, which is effected by a rotating motion of the whole

cænobium impelled by the flagella of its cells projecting through its envelope of cellulose. The direction of the rotation of the cænobia is not constant and may be either sinistral or dextral, but the direction of progress always coincides with an imaginary axis passing through the centre of the anterior empty pole and the posterior germ-bearing portion of the nearly spherical colony or cænobium. These poles are sometimes differentiated before the young Volvoxes leave their parent cænobium, which they do by breaking through the wall of the latter at its hinder pole.

The diameter of a Volvox cænobium is slightly longer measured along the axis around which it revolves than in the direction transverse to it. It results from this that the cænobia are somewhat smaller equatorially than axially so that the form of the whole is that of a very slightly oblong spheroid. These characters are fairly constant and nearly always apparent while that of the production of the spore in a little more than the posterior hemisphere of the cænobium is invariable as well as the uniform direction of the axis of progressive locomotion in relation thereto.

Another very extraordinary fact which was observed was that the so-called "eye-spots" found in the flagellate cells of the anterior pole of the spherical cænobium were the largest, and invariably occupied a definite position with relation to the flagella and to the axis around which the colony rotated. The anterior cells had the brownish red "eye-spots" largest, and as one examined row after row of the cells of the cænobium in succession backward toward what one might term the *caudal pole* these "eye-spots" were seen to gradually diminish in size, until in the last cells of the hinder pole, they were barely distinguishable as minute reddish points, which elevated the protoplasm of the cells into a slight prominence, such as is more marked over the larger anterior "eye-spots." This remarkable fact of the "eye-spots" of the anterior pole being the largest, revives in a striking way the query whether these reddish bodies are not really visual organs or sense organs of some kind, after all, as originally supposed by Ehrenberg. Their gradual diminution in size toward the posterior pole where they are nearly atrophied would seem to indicate that they were in some way related to the power of the organism to move in a definite direction, the cells of the anterior end being provided with the best developed visual, sensory apparatus, or whatever it may be. If it should prove possible to show that these "eye-spots" are really sensory organs in *Volvox*, as all the facts which have been here noted would seem to indicate, it would be one of the few instances known of a plant possessed of visual or sensory organs of any kind unless we except some such plants as the Venus' fly-trap.

The speaker stated that he had been unable to find any notice of any of the features of *Volvox*, which are here described; all of the figures to which he had had access in standard works were entirely erroneous from their authors having completely overlooked these

very salient and important features of this remarkable plant. This should therefore be regarded as his apology for bringing a very common organism to the notice of the Academy, and to the renewed attention of the microscopists who take pleasure in studying it. It is to be hoped that some one who is skilled in such work may be induced to take up the study of *Volvox* anew and publish a well-executed drawing of a colony in which the facts here recorded are adequately represented. This is all the more desirable in that, if *Volvox* is really a plant, its psychological history should be as much a matter of interest as its singular beauty and its intricate methods of reproduction seem to have been.

MAY 28.

Dr. W. S. W. RUSCHENBERGER in the chair.

Eighty-three persons present.

A paper entitled "A review of the American Species of Priacanthidæ" by Willard L. Morrison.

The following were elected members:—Emma Walter, Henry Bentley, Henry C. Johnson, and William W. Meigs.

George H. French of Carbondale, Ohio, was elected a correspondent.

The following were ordered to be printed:—